Amendments to the Specification:

Please replace paragraph [0037] with the following paragraph:

[0037] Figure 4 shows a detailed schematic of the pump 301 in the formation evaluation while drilling system 300 in Figure 3. The pump 301 is powered by the pressure differential between the mud pressure in the drill string (called "internal pipe pressure," P_I) and the pressure in the annulus (called "annular pressure," P_A). Referring to Figure 2, the internal pipe pressure P_I is experienced in the passage 640 inside the tool 601, and the annular pressure P_A is experienced in the annulus 605 between the tool 601 and the borehole wall 603. This pressure differential ($\Delta P = P_I - P_A$) is created because of the pressure drop associated with pumping the mud through the drill bit at the bottom of the drill string, or through other restrictions in the drill string. The differential pressure is typically 700 – 1,200 pounds per square inch.

Please replace paragraph [0058] with the following paragraph:

[0058] Figure 5 shows a pump ~~501~~500 in accordance with another embodiment of the invention. The pump ~~501~~500 may be used, for example, in the formation evaluation while drilling system shown in Figure 3, or in various other downhole tools, such as the formation evaluation while drilling tool 601, shown in Figure 2. The pump ~~501~~500 includes a pump chamber 521 with a dividing member 522 that creates two pumping sections. A piston 524, having a first end 525 and a second end 526, spans the dividing member 522 to create a first pump section 501 and a first hydraulic section 511 on one side of the dividing member 522 and a second pump section 502 and a second hydraulic section 512 on the other side of the dividing member 522. A connecting member 529, *e.g.*, a rod, connects the ends 525, 526 of the piston 524 and passes through the dividing member 522. Seals 523 seal around the connecting member 529 to prevent fluid from passing between the first hydraulic section 511 and the second hydraulic section 512. Seals 527 and 528 are also provided.

Please replace paragraph [0059] with the following paragraph:

[0059] The pump ~~501~~500 is connected to a charge line 503, which, in some embodiments, is in fluid communication with a probe. The charge line 503 is connected to the first pump section 501 through valve 505, and the charge line 503 is connected to the second pump section 502 through valve 506. In some embodiments, the valves 505, 506 are check valves that will only allow flow in one direction — from the charge line 503 to the pump sections 501, 502.

Please replace paragraph [0060] with the following paragraph:

[0060] The pump ~~501~~500 is also connected to a discharge line 504, which, in some embodiments, is in fluid communication with the borehole and one or more sample chambers (shown as "System" to indicate the remainder of the formation evaluation while drilling system). The discharge line 504 is connected to the first pump section 501 through valve 507, and the discharge line 504 is connected to the second pump section 502 through valve 508. In some embodiments, the valves 507, 508 are check valves that will only allow flow in one direction — from the pump sections 501, 502 to the discharge line 504.

Please replace paragraph [0065] with the following paragraph:

[0065] The pump ~~501~~500 shown in Figure 5 is a "double-acting" pump. "Double-acting" is used to mean that two actions may occur at the same time. For example, when the piston 524 moved in one direction, *e.g.* to the right in Figure 5, the first pump section 501 will undergo a charge stroke, and, at the same time, the second pump section 502 will undergo a discharge stroke. When the piston 524 reverses direction, the first pump section 501 will undergo a discharge stroke, and the second pump section 502 will undergo a charge stroke.

Please replace paragraph [0066] with the following paragraph:

[0066] Again, in some embodiments, it is advantageous to ensure that only one of the annular pressure isolation valve and the internal pipe pressure isolation valve for a hydraulic section (*e.g.*, annular isolation valve 515 and internal pipe pressure isolation valve 517 for first hydraulic section 511) is open at any one time. This will prevent the mud from freely passing from the inside of the drill string to the annulus, thereby defeating the pressure differential used to operate the pump ~~501~~<u>500</u>.

Please replace paragraph [0079] with the following paragraph:

[0079] In the embodiment shown, the probe ~~205~~<u>215</u> may be selectively moved between the extended and retracted position (Figure 7 shows a retracted position). The spring 216 applies a force against block 217 such that the block is maintained in the retracted position in its normal or at rest position. The probe 215 is extended by applying fluid pressure to the probe block 217 that is sufficient to overcome the force of the spring 216 and move the probe block 217 into the extended position. A valve (not shown) may be opened so that an annular cavity 218 around the probe block 217 is hydraulically coupled to the mud pressure in the drill string (*i.e.*, the internal pipe pressure P_I). The high pressure of the mud in the drill string fills the cavity and pushes the probe block 217 with enough force to overcome the force of the spring 216 and extend the probe 215 into contact with the formation.

Please replace paragraph [0088] with the following paragraph:

[0088] In some embodiments, the next step 704 includes stopping drilling and step 705 includes stopping the mud pumps so that the mud flow through the drill string is stopped. Stopping the rotation of the drill string will enable the formation evaluation while drilling tool to extend a probe or packers. Sensors may be included in the formation evaluation while drilling tool to determine when the mud flow has stopped. At that point, the system may begin a formation evaluation operation. In other embodiments, the formation evaluation while drilling tool may include other types of sensors that determine when drilling has stopped. For example, a sensor that detects when rotation has stopped may be used without departing from the scope of the invention. The type of sensor used is not intended to limit the invention.